

Attorney Docket No. Q61232

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No. 09/686,959

**REMARKS**

Claims 1, 4, 6 - 13, 25, 30 - 37, 49, 50, 53, 55 - 62, 74, 77, 79 - 86 and 98 - 122 were previously presently pending. New claims 123 - 129 are herein added. Accordingly claims 1, 4, 6 - 13, 25, 30 - 37, 49, 50, 53, 55 - 62, 74, 77, 79 - 86, and 98 - 129 are presently pending in the application.

**I. Request for Reconsideration of Examiner's Election/Restriction of Claims 98 - 112**

The Examiner has *sua sponte* withdrawn claims 98 - 112 on allegations that such claims do not read on the elected Species 1. Applicant respectfully disagrees with the Examiner's characterization of claims 98 - 112 as belonging only to Species 2 and/or 3, and requests reconsideration based on the following.

**Rationales Establishing Claims 98 - 112 as Belonging to a First Species**

Claims 98 - 112 generally read on the illustrative, non-limiting embodiment of elected Species 1, which is shown in Figures 5 - 11. Such claims describe the feature that "the ink consumption amount control means controls the consumption amount of ink on the basis of the ink reservation amount and the amount of change per unit time in temperature of the recording head, *in consideration of the actual ink temperature*," among other features. The captioned features of claims 98 - 112 are described in the specification at page 26, lines 12 - 17, and from page 30, line 35 to page 31, line 6, as an, exemplary, non-limiting embodiment of the present invention.

Species 2 corresponds to Figures 12 - 18, which illustrate exemplary, non-limiting embodiments of the present invention. An exemplary configuration of these embodiments is that

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"the ink consumption amount control means performs the control for *preparatory ejection* of the recording head on the basis of the ink reservation amount and the amount of change per unit time in temperature of the recording head."

Species 3 corresponds to Figures 19 - 20, which illustrate another, exemplary, non-limiting embodiment. In one example of this embodiment, "*the changing means changes the control for fine vibration drive on the basis of the ink reservation amount and the amount of change per unit time in temperature of the recording head.*"

Applicant respectfully submits that claims 98 - 112 clearly read on Species 1 shown in the illustrative, non-limiting embodiments of Figures 5 - 11 and described at page 26, lines 12 - 17, and from page 30, line 35 to page 31, line 6. For example, claims 98 - 112 recite the ink consumption being controlled in consideration with (among other things) the actual ink temperature. Accordingly, Applicant respectfully requests that the Examiner reconsider the withdrawal of claims 98 - 112 because the claims clearly read on the non-limiting embodiments of Species 1.

## II. First Rejection - 35 U.S.C. § 103(a)

Claims 1, 4, 6, 25, 30, 35 - 37, 49, 50, 53, 55, 74, 77, 79, 113, 115, 117, 119 and 121 stand rejected by the Examiner under 35 U.S.C. § 103 in view of U.S.P. Nos. 5,900,888 to Kurosawa; 5,136,305 to Ims; and 3,914,862 to McBride. This rejection is respectfully traversed as follows..

Claim 1 recites "ink consumption amount controlling means for controlling the ink consumption amount of said recording head based on the temperature change amount per unit of

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time of the recording head obtained by said temperature change amount obtaining means and the ink reservation amount obtained by said ink reservation amount obtaining means."<sup>1</sup> To paraphrase these features of the independent claims:

- (i) the ink reservation amount obtaining means acquires the amount of ink contained in the ink reservoir;
- (ii) the temperature change amount obtaining means acquires the amount of change per unit time in temperature of the recording head; and
- (iii) the ink consumption amount control means controls the consumption amount of ink consumed by the recording head on the basis of the following amounts:
  - (a) the amount of change per unit time in temperature of the recording head, which is acquired by the temperature change amount obtaining means, and
  - (b) the amount of ink contained in the reservoir, which amount is acquired by the ink reservation amount obtaining means.

At least these features are absolutely absent from the prior art cited as the basis for rejection (the Kurosawa, Ims and McBride references), rendering the independent claims non-obvious, as further explained below.

In comparison to the above-noted features of the independent claims, the Kurosawa reference merely controls the consumption amount of ink in accordance with the determined ink reservation amount, and does not teach controlling the consumption amount of ink on the basis

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<sup>1</sup> All of the independent claims of Applicant's invention (claims 25, 49, 50, 74, 113, 115, 117, 119 and 123) recite similar features.

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of the ink reservation amount and the amount of change in temperature per unit time of the recording head. Furthermore, the Ims reference fails to cure the deficiencies of the Kurosawa reference. That is, the Ims reference merely discloses a thermistor located in the sponge of an ink reservoir (*see* Col. 4, lines 30 - 40) for obtaining the temperature of the ink in the reservoir. Clearly, the thermistor does nothing to detect the change amount per unit of time of the recording head, as recited by Applicant's independent claims.

Therefore, even when the technique of Ims as described above is applied to Kurosawa, the most that one skilled in the art would conceive would be a configuration for "determining the ink reservation amount from the amount of change per unit time in temperature of a thermistor located in an ink reservoir, and controlling the consumption amount of ink on the basis of the determined ink reservation amount." Stated differently, the references utterly fail to teach controlling the consumption of ink consumed by the recording head on the basis of the following amounts:

(a) the amount of change per unit time in temperature of the recording head, which is acquired by the temperature change amount obtaining means, and

(b) the amount of ink contained in the reservoir, which amount is acquired by the ink reservation amount obtaining means. Additionally, the McBride reference fails to cure the deficiencies of Kurosawa and Ims.

Accordingly, contrary to the Examiner's thesis that the present invention is obvious from the teachings of Kurosawa, Ims and McBride, Applicant respectfully asserts that the feature of the independent claims, *i.e.*, "the ink consumption amount control means controls the

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consumption amount of ink consumed by the recording head on the basis of the amount of ink contained in the ink cartridge and the amount of change per unit time in temperature of the recording head" is not obvious. The Examiner is therefore respectfully requested to reconsider and withdraw this rejection.

### III. Second Rejection - 35 U.S.C. § 103(a)

The Examiner also rejects claims 11 - 13, 60 - 62, and 84 - 86 under 35 U.S.C. § 103 in view of a combination of Kurosawa, Ims, McBride and U.S.P. No. 6,145,949 to Takahashi. This rejection is respectfully traversed as follows.

As stated previously, the Kurosawa, Ims and McBride references are deficient. In brief, the Takahashi reference fails to cure the noted deficiencies. Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection.

### IV. Third Rejection - 35 U.S.C. § 103(a)

The Examiner also rejects claims 11 - 13, 60 - 62 and 84 - 86 under 35 U.S.C. § 103 in view of Kurosawa, Ims, McBride, JP 05-050590 to Takayanagi and U.S.P. No. 6,290,321 to Murray. This rejection is respectfully traversed as follows.

As stated previously, the Kurosawa, Ims and McBride references are deficient. In brief, Takayanagi and Murray fail to cure the noted deficiencies. Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection.

### V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

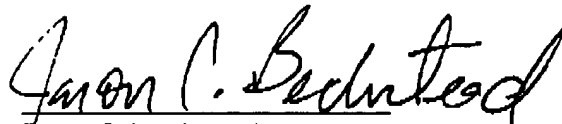
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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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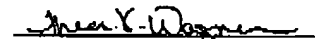
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Date: April 26, 2004

## CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this Amendment Under 37 C.F.R. § 1.111 is being facsimile transmitted to the U.S. Patent and Trademark Office this 26th day of April, 2004.

  
Thea K. Wagner